MiCA White Paper

Lido DAO (LDO)

Version 1.0
July 2025

White Paper in accordance with Markets in Crypto Assets Regulation (MiCAR)
for the European Economic Area (EEA).

Purpose: seeking admission to trading in EEA.

Prepared and Filed by LCX.com

NOTE: THIS CRYPTO-ASSET WHITE PAPER HAS NOT BEEN APPROVED BY ANY COMPETENT AUTHORITY IN ANY MEMBER STATE OF THE EUROPEAN ECONOMIC AREA. THE PERSON SEEKING ADMISSION TO TRADING IS SOLELY RESPONSIBLE FOR THE CONTENT OF THIS CRYPTO-ASSET WHITE PAPER ACCORDING TO THE EUROPEAN ECONOMIC AREA'S MARKETS IN CRYPTO-ASSET REGULATION (MICA).

LCX is voluntarily filing a MiCA-compliant whitepaper for LDO as LDO is classified as **"Other Crypto-Assets" (OTHR)** under MiCA. Unlike Asset-Referenced Tokens (ARTs), Electronic Money Tokens (EMTs), or Utility Tokens, LDO does not legally require a MiCA whitepaper. However, MiCA permits service providers to publish a whitepaper voluntarily to enhance transparency, regulatory clarity, and investor confidence. As the governance token of one of the largest liquid staking protocols, Lido DAO's LDO token plays a critical role in the Web3 DeFi ecosystem, enabling decentralized governance of the Lido protocol which secures Proof-of-Stake networks (primarily Ethereum) through liquid staking. This white paper aims to provide a comprehensive regulatory disclosure, ensuring market participants have clear insights into LDO's functionality, risks, and role within the MiCA framework. This document provides essential information about LDO's characteristics, associated risks, and the framework under which LCX facilitates LDO-related services in compliance with MiCA's standards.

This document provides essential information about **LDO**'s characteristics, risks, and the framework under which LCX facilitates LDO-related services in compliance.

This white paper has been prepared in accordance with the requirements set forth in Commission Implementing Regulation (EU) 2024/2984, ensuring that all relevant reporting formats, content specifications, and machine-readable structures outlined in Annex I of this regulation have been fully mapped and implemented, particularly reflected through the Recitals, to enable proper notification under the Markets in Crypto-Assets Regulation (MiCAR).

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01 DATE OF NOTIFICATION

2025-09-01

COMPLIANCE STATEMENTS

02 This crypto-asset white paper has not been approved by any competent authority in any Member State of the European Economic Area. The offeror of the crypto-asset is solely responsible for the content of this crypto-asset white paper.

Where relevant in accordance with Article 6(3), second subparagraph of Regulation (EU) 2023/1114, reference shall be made to ‘person seeking admission to trading’ or to ‘operator of the trading platform’ instead of ‘offeror’.

03 This crypto-asset white paper complies with Title II of Regulation (EU) 2023/1114 and, to the best of the knowledge of the management body, the information presented in the crypto-asset white paper is fair, clear and not misleading and the crypto-asset white paper makes no omission likely to affect its import.

04 The crypto-asset referred to in this white paper may lose its value in part or in full, may not always be transferable and may not be liquid.

05 Not applicable

06 The crypto-asset referred to in this white paper is not covered by the investor compensation schemes under Directive 97/9/EC of the European Parliament and of the Council.The crypto-asset referred to in this white paper is not covered by the deposit guarantee schemes under Directive 2014/49/EU of the European Parliament and of the Council.

SUMMARY

07 Warning

This summary should be read as an introduction to the crypto-asset white paper. The prospective holder should base any decision to purchase this crypto-asset on the content of the crypto-asset white paper as a whole and not on the summary alone. The offer to the public of this crypto-asset does not constitute an offer or solicitation to purchase financial instruments and any such offer or solicitation can be made only by means of a prospectus or other offer documents pursuant to the applicable national law.

This crypto-asset white paper does not constitute a prospectus as referred to in Regulation (EU) 2017/1129 of the European Parliament and of the Council (36) or any other offer document pursuant to Union or national law.

08 Characteristics of the crypto-asset

Lido DAO (LDO) is the governance token of the Lido protocol – a decentralized liquid staking platform that allows users to stake cryptocurrency (notably Ether) without locking assets or maintaining infrastructure, receiving transferable “staked” tokens (e.g. stETH) in return. LDO holders govern the Lido Decentralized Autonomous Organization (DAO), which oversees key parameters of the protocol (such as fees, addition/removal of node operators, and treasury allocations). LDO’s primary function is to grant governance rights; it does not entitle holders to fixed financial returns or access to services, distinguishing it from utility tokens under MiCA.

Lido launched on Ethereum in December 2020, minting 1 billion LDO tokens at genesis. The initial allocation distributed LDO among the DAO treasury (36.32%), investors (22.18%), validators & signature holders (6.5%), initial developers (20%), and founders/future employees (15%). These allocations were subject to vesting schedules (typically a 1-year lockup followed by 1-year linear vesting), all of which have concluded by early 2023. As a result, the majority of LDO tokens are now unlocked and circulating, though the Lido DAO treasury still holds a significant portion for ecosystem growth and security reserves.

LDO is an ERC-20 token on the Ethereum blockchain, and since Ethereum’s transition to Proof-of-Stake (the Merge in September 2022), the network’s energy consumption and environmental footprint have been drastically reduced (over 99.9% lower than under Proof-of-Work). LDO does not require mining; all tokens were pre-minted, and Ethereum’s validators secure the network. Lido’s operations thus benefit from Ethereum’s energy-efficient consensus.

09 Not applicable

10 Key information about the offer to the public or admission to trading

Lido DAO (LDO) is a decentralized governance token associated with the Lido protocol—a leading liquid staking solution deployed on Ethereum and other proof-of-stake blockchains. The token was launched in 2020 to empower decentralized governance over protocol parameters, treasury management, and staking product evolution. LDO is widely traded and held globally across major centralized and decentralized platforms. This white paper is provided voluntarily in alignment with the Markets in Crypto-Assets Regulation (MiCA) to promote transparency regarding LDO’s admission to trading on regulated platforms.

There is no ongoing or planned issuance, public sale, or capital raise associated with LDO in connection with this document. The token is already in free circulation, and this disclosure serves exclusively to support its compliant listing and trading under the MiCA framework.

LCX AG, as a Crypto-Asset Service Provider, facilitates the listing and trading of LDO on its platform in a compliant manner. LCX’s regulated exchange will support LDO trading (e.g., LDO/EUR pair), providing a secure and transparent marketplace. Users must have an LCX account and complete KYC/AML verification to trade LDO on LCX, in line with regulatory requirements.

Total offer amount	Not applicable
Total number of tokens to be offered to the public	Not applicable
Subscription period	Not applicable
Minimum and maximum subscription amount	Not applicable
Issue price	Not applicable
Subscription fees (if any)	Not applicable
Target holders of tokens	Not applicable
Description of offer phases	Not applicable
CASP responsible for placing the token (if any)	Not applicable
Form of placement	Not applicable
Admission to trading	LCX AG, Herrengasse 6, 9490 Vaduz, Liechtenstein

A. PART A - INFORMATION ABOUT THE OFFEROR OR THE PERSON SEEKING ADMISSION TO TRADING

A.1 Name

LCX

A.2 Legal Form

AG

A.3 Registered Address

Herrengasse 6, 9490 Vaduz, Liechtenstein

A.4 Head Office

Herrengasse 6, 9490 Vaduz, Liechtenstein

A.5 Registration Date

24.04.2018

A.6 Legal Entity Identifier

529900SN07Z6RTX8R418

A.7 Another Identifier Required Pursuant to Applicable National Law

FL-0002.580.678-2

A.8 Contact Telephone Number

+423 235 40 15

A.9 E-mail Address

legal@lcx.com

A.10 Response Time (Days)

020

A.11 Parent Company

Not applicable

A.12 Members of the Management Body

Full Name	Business Address	Function
Monty C. M. Metzger	Herrengasse 6, 9490 Vaduz, Liechtenstein	President of the Board
Katarina Metzger	Herrengasse 6, 9490 Vaduz, Liechtenstein	Board Member
Anurag Verma	Herrengasse 6, 9490 Vaduz, Liechtenstein	Director of Technology

A.13 Business Activity

LCX provides various crypto-asset services under Liechtenstein's Token and Trusted Technology Service Provider Act ("Token- und Vertrauenswürdige Technologie-Dienstleister-Gesetz" in short "TVTG") also known as the Blockchain Act. These include custody and administration of crypto-assets, offering secure storage for clients' assets and private keys. LCX operates a trading platform, facilitating the matching of buy and sell orders for crypto-assets. It enables both crypto-to-fiat and crypto-to-crypto exchanges, ensuring compliance with AML and KYC regulations. LCX also supports token placements, marketing crypto-assets on behalf of offerors.

Under MiCA, LCX is classified as a Crypto-Asset Service Provider (CASP). LCX is not yet formally supervised under MiCA until the license is granted by the competent authority. LCX AG has applied

for MiCA licensing on February 1, 2025, the first day of MiCA's implementation in Liechtenstein.

Under the TVTG framework, LCX provides:

- TT Depositary – Custody and safekeeping of crypto-assets.
- TT Trading Platform Operator – Operation of a regulated crypto-asset exchange.
- TT Exchange Service Provider – Crypto-to-fiat and crypto-to-crypto exchange.
- Token Issuer – Marketing and distribution of tokens.
- TT Transfer Service Provider – Crypto-asset transfers between ledger addresses.
- Token Generator & Tokenization Service Provider – Creation and issuance of tokens.
- Physical Validator – Enforcement of token-based rights on TT systems.
- TT Verification & Identity Service Provider – Legal capacity verification and identity registration.
- TT Price Service Provider – Providing aggregated crypto-asset price information.

A.14 Parent Company Business Activity

Not applicable

A.15 Newly Established

false

A.16 Financial Condition for the past three Years

LCX AG has a strong capital base, with CHF 1 million (approx. 1,126,000 USD) in share capital (Stammkapital) and a solid equity position (Eigenkapital) in 2023. The company has experienced fluctuations in financial performance over the past three years, reflecting the dynamic nature of the crypto market. While LCX AG recorded a loss in 2022, primarily due to a market downturn and a security breach, it successfully covered the impact through reserves. The company has remained financially stable, achieving revenues and profits in 2021, 2023 and 2024 while maintaining break-even operations.

In 2023 and 2024, LCX AG strengthened its operational efficiency, expanded its business activities, and upheld a stable financial position. Looking ahead to 2025, the company anticipates positive financial development, supported by market uptrends, an inflow of customer funds, and strong business performance. Increased adoption of digital assets and service expansion are expected to drive higher revenues and profitability, further reinforcing LCX AG’s financial position.

A.17 Financial Condition Since Registration

LCX AG has been financially stable since its registration, supported by CHF 1 million in share capital (Stammkapital) and continuous business growth. Since its inception, the company has expanded its operations, secured multiple regulatory registrations, and established itself as a key player in the crypto and blockchain industry.

While market conditions have fluctuated, LCX AG has maintained strong revenues and break-even operations. The company has consistently reinvested in its platform, technology, and regulatory compliance, ensuring long-term sustainability. The LCX Token has been a fundamental part of the ecosystem, with a market capitalization of approximately $200 million USD and an all-time high exceeding $500 million USD in 2022. Looking ahead, LCX AG anticipates continued financial growth, driven by market uptrends, increased adoption of digital assets, and expanding business activities.

B. PART B - INFORMATION ABOUT THE ISSUER, IF DIFFERENT FROM THE OFFEROR OR PERSON SEEKING ADMISSION TO TRADING[1]

B.1 Issuer different from offeror or person seeking admission to trading

True

B.2 Name

There is no formal legal issuer entity for LDO. The token was originally created by anonymous blockchain developers. For the purposes of disclosure, the “LDO project” can be associated with its community and the pseudonymous developers who deployed the token smart contract (collectively referred to as the “LDO creators”).

B.3 Legal Form

Not applicable. LDO was not issued by a registered legal entity such as a corporation or foundation.

B.4 Registered Address

Not applicable

B.5 Head Office

Not applicable

B.6 Registration Date

Not applicable

B.7 Legal Entity Identifier

Not applicable. (No LEI – the issuer is not a legal entity.)

B.8 Another Identifier Required Pursuant to Applicable National Law

Not applicable. (No LEI – the issuer is not a legal entity.)

B.9 Parent Company

Not applicable

B.10 Members of the Management Body

Not applicable. There is no formal management body. The LDO project does not have officers or directors. It is driven by community volunteers and holders.

B.11 Business Activity

Not applicable

B.12 Parent Company Business Activity

Not applicable

1

C. PART C - INFORMATION ABOUT THE OPERATOR OF THE TRADING PLATFORM IN CASES WHERE IT DRAWS UP THE CRYPTO-ASSET WHITE PAPER AND INFORMATION ABOUT OTHER PERSONS DRAWING THE CRYPTO-ASSET WHITE PAPER PURSUANT TO ARTICLE 6(1), SECOND SUBPARAGRAPH, OF REGULATION (EU) 2023/1114

C.1 Name

LCX AG

C.2 Legal Form

AG

C.3 Registered Address

Herrengasse 6, 9490 Vaduz, Liechtenstein

C.4 Head Office

Herrengasse 6, 9490 Vaduz, Liechtenstein

C.5 Registration Date

24.04.2018

C.6 Legal Entity Identifier

529900SN07Z6RTX8R418

C.7 Another Identifier Required Pursuant to Applicable National Law

FL-0002.580.678-2

C.8 Parent Company

Not Applicable

C.9 Reason for Crypto-Asset White Paper Preparation

LCX is voluntarily preparing this MiCA-compliant white paper for LDO (LDO) to enhance transparency, regulatory clarity, and investor confidence in the trading of LDO. While LDO qualifies as “Other Crypto-Assets” under MiCA and thus does not strictly require a white paper, LCX is providing this document to support its role as a regulated Crypto-Asset Service Provider and to ensure full compliance with MiCA when facilitating LDO trading on its platform. By publishing a MiCA white paper for LDO, LCX aims to set a high disclosure standard and help market participants make informed decisions about the asset within the EU’s regulatory framework.

C.10 Members of the Management Body

Full Name	Business Address	Function
Monty C. M. Metzger	Herrengasse 6, 9490 Vaduz, Liechtenstein	President of the Board
Katarina Metzger	Herrengasse 6, 9490 Vaduz, Liechtenstein	Board Member
Anurag Verma	Herrengasse 6, 9490 Vaduz, Liechtenstein	Director of Technology

C.11 Operator Business Activity

LCX provides various crypto-asset services under Liechtenstein’s Token and Trusted Technology Service Provider Act (“Token- und Vertrauenswürdige Technologie-Dienstleister-Gesetz” in short “TVTG”) also known as the Blockchain Act. These include custody and administration of crypto-assets, offering secure storage for clients' assets and private keys. LCX operates a trading platform, facilitating the matching of buy and sell orders for crypto-assets. It enables both crypto-to-fiat and

crypto-to-crypto exchanges, ensuring compliance with AML and KYC regulations. LCX also supports token placements, marketing crypto-assets on behalf of offerors.

Under MiCA, LCX is classified as a Crypto-Asset Service Provider (CASP). LCX is not yet formally supervised under MiCA until the license is granted by the competent authority. LCX AG has applied for MiCA licensing on February 1, 2025, the first day of MiCA's implementation in Liechtenstein.

Under the TVTG framework, LCX provides:

- TT Depositary – Custody and safekeeping of crypto-assets.
- TT Trading Platform Operator – Operation of a regulated crypto-asset exchange.
- TT Exchange Service Provider – Crypto-to-fiat and crypto-to-crypto exchange.
- Token Issuer – Marketing and distribution of tokens.
- TT Transfer Service Provider – Crypto-asset transfers between ledger addresses.
- Token Generator & Tokenization Service Provider – Creation and issuance of tokens.
- Physical Validator – Enforcement of token-based rights on TT systems.
- TT Verification & Identity Service Provider – Legal capacity verification and identity registration.
- TT Price Service Provider – Providing aggregated crypto-asset price information.

C.12 Parent Company Business Activity

Not Applicable

C.13 Other persons drawing up the white paper under Article 6 (1) second subparagraph MiCA

Not Applicable

C.14 Reason for drawing up the white paper under Article 6 (1) second subparagraph MiCA

Not Applicable

D. PART D - INFORMATION ABOUT THE CRYPTO-ASSET PROJECT

D.1 Crypto-Asset Project Name

LDO

D.2 Crypto-Assets Name

LDO

D.3 Abbreviation

LDO

D.4 Crypto-Asset Project Description

Lido is a liquid staking protocol that allows users to stake proof-of-stake cryptocurrencies while maintaining liquidity via “staked tokens.” Initially built for Ethereum 2.0 staking, Lido has become the largest liquid staking provider on Ethereum and expanded to other networks (such as Solana, Polygon, Polkadot, and others via separate instances). The core idea is that when a user stakes ETH (or another supported coin) through Lido’s smart contracts, they receive an ERC-20 token representing their staked asset plus accumulated rewards (for ETH, this token is stETH). stETH is freely transferable and can be used in DeFi or traded, solving the problem of illiquidity during staking lock-up. Lido’s smart contracts manage the deposit of users’ ETH to Ethereum’s beacon chain validators (run by Lido-approved node operators) and track the issuance of stETH. As rewards accrue or penalties occur, the stETH supply is updated (stETH is a rebase token that increases in balance to reflect rewards). After Ethereum’s Shanghai upgrade (April 2023) enabled withdrawals, Lido V2 introduced a mechanism for stETH holders to burn stETH to withdraw underlying ETH from the protocol, completing the staking cycle.

The Lido DAO governs this protocol. It is a decentralized community of LDO token holders who vote on proposals—such as setting the fee rate (currently Lido takes a 10% cut of staking rewards, splitting between node operators and the DAO treasury), choosing new node operators (validators) to add (ensuring they are reputable and diverse to mitigate risk), upgrading contract code, and deploying Lido on new blockchains. Lido DAO’s goal is to keep staking secure, decentralized, and useful. To that end, Lido has implemented features like the Staking Router, which allows for modular addition of validator subsets (including community-run validators and Distributed Validator Technology (DVT) clusters in the future, to further decentralize the operator set).

D.5 Details of all persons involved in the implementation of the crypto-asset project

There is no formal team roster or disclosed individuals responsible for LDO’s ongoing implementation, reflecting its decentralized nature. The original developers launched the token anonymously; their identities are not publicly known (a common practice with meme coins). Implementation and maintenance of the “project” largely involve the Ethereum network itself (which is maintained by Ethereum’s global developer and validator community, not by LDO’s creators). Key roles relevant to LDO include:

Full Name	Business Address	Function
Lido DAO (LDO Holders)	*Global*	*Governance of protocol (votes on proposals, manages parameters)*

Lido Node Operators	*Global*	*Run staking validators; secure Ethereum & other networks for Lido users.*
Lido Core Devs & Contributors	*Global*	*Develop and maintain smart contracts, interfaces, and protocol upgrades.*
Lido Labs Foundation	*Harbour Place, 2/F, 103 S. Church St., George Town, Cayman Is.*	*Legal entity for DAO (contracts, partnerships, compliance support.*

D.6 Utility Token Classification

false

D.7 Key Features of Goods/Services for Utility Token Projects

Not applicable

D.8 Plans for the Token

Not applicable

D.9 Resource Allocation

Not applicable

D.10 Planned Use of Collected Funds or Crypto-Assets

Not applicable

E. PART E - INFORMATION ABOUT THE OFFER TO THE PUBLIC OF CRYPTO-ASSETS OR THEIR ADMISSION TO TRADING

E.1 Public Offering or Admission to Trading

ATTR

E.2 Reasons for Public Offer or Admission to Trading

LCX's reason for admitting LDO to trading and preparing this white paper is to foster transparency and compliance. LDO token is a well-established crypto-asset, and by providing a MiCA-compliant disclosure, LCX aims to facilitate regulatory clarity and market confidence for European investors trading LDO. While LDO is not legally required to have a MiCA white paper, LCX is proactively aligning with MiCA's high standards of disclosure. This initiative supports compliance readiness ahead of MiCA enforcement and underscores LCX's commitment as a regulated exchange to provide comprehensive information about listed assets. Publishing this white paper can also enhance market access for LDO—by removing regulatory uncertainty, institutional investors and regulated entities in the EU may feel more comfortable engaging with LDO. In essence, offering LDO trading under a MiCA framework helps integrate LDO into the regulated financial ecosystem, potentially broadening its user base. It reinforces LCX's role in shaping a compliant and transparent crypto market by voluntarily applying MiCA's investor protection principles.This should ultimately benefit the LDO ecosystem through greater trust and participation.

E.3 Fundraising Target

Not applicable

E.4 Minimum Subscription Goals

Not applicable

E.5 Maximum Subscription Goal

Not applicable

E.6 Oversubscription Acceptance

Not applicable

E.7 Oversubscription Allocation

Not applicable

E.8 Issue Price

Not applicable

E.9 Official Currency or Any Other Crypto-Assets Determining the Issue Price

Not applicable

E.10 Subscription Fee

Not applicable

E.11 Offer Price Determination Method

Not applicable

E.12 Total Number of Offered/Traded Crypto-Asset

As of July 2025, the total maximum supply of Lido DAO (LDO) tokens is capped at 1,000,000,000 LDO. This maximum supply was fixed at the token's genesis and cannot be increased. Out of this total, approximately 896,900,000 LDO tokens are currently in circulation, representing roughly 89.7% of the total supply. All major token allocations, including those to the DAO treasury, early contributors, investors, and staking incentives, have completed their vesting schedules. No further scheduled unlocks remain. The circulating supply figure reflects tokens actively available and transferable in the market, excluding any that remain under DAO governance control or are held in reserve.

E.13 Targeted Holders

ALL

E.14 Holder Restrictions

Not applicable

E.15 Reimbursement Notice

Not applicable

E.16 Refund Mechanism

Not applicable

E.17 Refund Timeline

Not applicable

E.18 Offer Phases

Not applicable

E.19 Early Purchase Discount

Not applicable

E.20 Time-Limited Offer

Not applicable

E.21 Subscription Period Beginning

Not applicable

E.22 Subscription Period End

Not applicable

E.23 Safeguarding Arrangements for Offered Funds/Crypto-Assets

Not applicable

E.24 Payment Methods for Crypto-Asset Purchase

Not applicable

E.25 Value Transfer Methods for Reimbursement

Not applicable

E.26 Right of Withdrawal

Not applicable

E.27 Transfer of Purchased Crypto-Assets

Not applicable

E.28 Transfer Time Schedule

Not applicable

E.29 Purchaser's Technical Requirements

Not applicable

E.30 Crypto-asset service provider (CASP) name

Not applicable

E.31 CASP identifier

Not applicable

E.32 Placement Form

NTAV

E.33 Trading Platforms name

LCX AG

E.34 Trading Platforms Market Identifier Code (MIC)

LCXE

E.35 Trading Platforms Access

To access LDO trading on LCX Exchange, users must create an account with LCX and complete KYC/AML verification. Once onboarded, users can access the trading platform via LCX's web interface or API. The LDO/EUR market on LCX will be accessible to customers in permitted jurisdictions, offering the ability to trade against fiat with the confidence of LCX's compliance oversight. Beyond LCX, LDO remains available on decentralized platforms (like Uniswap) and other CEXs, but those venues may not offer the same investor protections. LCX's listing of LDO provides a bridge for European users to trade this memecoin under a compliant framework (e.g., with euro pairing and proper custodial security).

E.36 Involved Costs

Not applicable

E.37 Offer Expenses

Not applicable

E.38 Conflicts of Interest

Not applicable

E.39 Applicable Law

For admission to trading of LDO on LCX, the applicable law is Liechtenstein law, applied in accordance with MiCA and EU regulations. For decentralized governance or on-chain activities outside LCX, applicable law depends on the user's jurisdiction.

E.40 Competent Court

Any disputes related to services provided by LCX shall fall under the jurisdiction of the Courts of Liechtenstein. For DAO-level governance or on-chain usage, no centralized legal recourse applies.

F. PART F - INFORMATION ABOUT THE CRYPTO-ASSETS

F.1 Crypto-Asset Type

Other Crypto-Asset

F.2 Crypto-Asset Functionality

LDO is a governance token used to participate in decision-making for the Lido DAO. Holders of LDO can propose and vote on changes to the Lido protocol and its parameters (such as fee rates, addition of new node operators, treasury allocations, deployment to new blockchains, etc.). In practical terms, owning LDO allows one to influence the future direction and management of the Lido liquid staking platform. Governance votes are typically done on-chain (using Aragon contracts or upgraded frameworks) with voting power proportional to LDO balance. LDO does not provide any automatic rights to profit or assets – for instance, it does not entitle holders to staking rewards or dividends (those accumulate to stETH holders or the DAO treasury, respectively). It also does not grant access to usage of the Lido platform (which is open to anyone regardless of holding LDO). Thus, LDO's functionality is primarily to confer voting power and align incentives by giving those who have a stake in the Lido protocol's success a say in its governance.

Beyond governance, LDO can serve as a coordination and incentive tool: the DAO has in the past used LDO tokens for contributor rewards and liquidity mining incentives (distributing LDO to users providing liquidity for stETH pools, etc., thereby bootstrapping the ecosystem). Such programs effectively use LDO as an incentivization asset to grow Lido's adoption.

LDO also plays a role in emergency decisions: the DAO, through LDO votes, could react to crises (e.g., contract vulnerabilities or slashing events) by quickly upgrading contracts or reallocating funds. Some aspects of Lido's dual governance (a concept under development as of 2024) might introduce a role for stETH holders as well, but LDO remains the primary governance token.

Importantly, LDO does not qualify as a "utility token" under MiCA because holding LDO does not grant a right to use a service or product; it grants participation in governance, which is not a consumptive utility in the MiCA sense. LDO also does not represent any claim on underlying staked assets (stETH serves that function for ETH). Therefore, LDO's functionality is limited to governance and related coordination within the Lido ecosystem. Its value is derived from the collective belief that controlling a portion of Lido's governance has economic significance (indirect influence over a protocol that earns fees, etc.), but it has no inherent usage like paying for fees or accessing a platform feature.

F.3 Planned Application of Functionalities

LDO is already fully functional and in use for governance; there are no planned new functionalities for LDO itself that are not already active. The token's role will continue to be governance-oriented. However, the Lido DAO community has ongoing discussions about strengthening governance (e.g., introducing dual governance where stETH holders can veto certain decisions, as a check against LDO governance centralization). If implemented, such changes would slightly alter how LDO governance works (sharing some control with stETH stakeholders), but LDO would remain the primary driver of proposals and approvals. Additionally, there is an expectation that LDO's governance processes might migrate to new frameworks for efficiency (for example, moving from Aragon to a custom Governance 2.0 system or adding off-chain voting with on-chain execution). These are evolutionary improvements.

F.4 Type of white paper

OTHR

F.5 The type of submission

NEWT

F.6 Crypto-Asset Characteristics

Lido DAO's native token, LDO, has a total fixed supply of 1,000,000,000 tokens, all of which were minted at genesis. There is no inflationary issuance mechanism; any potential increase would require a change to the governance contract—an action that has not been proposed and would necessitate overwhelming community support. For all practical purposes, the supply is fixed at one billion tokens. As of April 2025, approximately 890 million LDO tokens are in circulation, with the remainder held in the DAO treasury or vesting contracts. While initial circulation was limited (approximately 0.9% in January 2021) due to vesting schedules, all team and investor allocations have since unlocked, leaving most tokens freely transferable except for those still under DAO control.

LDO is deployed as an ERC-20 token on the Ethereum mainnet (contract address: 0x5a98fcBEA516Cf06857215779Fd812CA3bef1B32). It adheres to the ERC-20 standard, ensuring compatibility with any standard Ethereum wallet and facilitating seamless transferability. The token contract is non-upgradeable, meaning it is immutable and not governed by a proxy pattern. Its logic is limited to core ERC-20 functionalities (e.g., transfers, balances), and it has been subject to audits with no vulnerabilities reported. Unlike Lido's upgradeable stETH contract, LDO is structurally simple and secure.

The LDO token operates atop Ethereum's Proof-of-Stake consensus mechanism, benefiting from the security guarantees of Ethereum's validator set and broader network infrastructure. While the primary in-protocol function of LDO is governance—enabling token holders to vote on Lido DAO proposals—its role has expanded beyond protocol decision-making. LDO is actively traded on centralized and decentralized exchanges, and it is used in various DeFi applications, including as collateral on lending platforms such as Aave, where it is subject to specific loan-to-value risk parameters.

F.7 Commercial name or trading name

LDO

F.8 Website of the issuer

Not applicable (the issuer is the decentralized Lido DAO, which has no single corporate website). Official project resources include the Lido website lido.fi and the Lido documentation site docs.lido.fi, which serve as the primary information portals about the protocol. However, there is no distinct "issuer website" in the MiCA sense since Lido DAO is not a company with an investor relations page.

F.9 Starting date of offer to the public or admission to trading

2025-10-01

F.10 Publication date

2025-10-01

F.11 Any other services provided by the issuer

Not applicable

F.12 Language or languages of the white paper

English

F.13 Digital Token Identifier Code used to uniquely identify the crypto-asset or each of the several crypto assets to which the white paper relates, where available

4DT907DF4

F.14 Functionally Fungible Group Digital Token Identifier, where available

Not applicable

F.15 Voluntary data flag

true

F.16 Personal data flag

false

F.17 LEI eligibility

false

F.18 Home Member State

Liechtenstein

F.19 Host Member States

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

G. PART G - INFORMATION ON THE RIGHTS AND OBLIGATIONS ATTACHED TO THE CRYPTO-ASSETS

G.1 Purchaser Rights and Obligations

Purchasers or holders of LDO do not acquire any specific contractual rights or legal claims against an issuer or anyone else by holding the token. LDO is a decentralized network token, not a share or debt instrument; therefore, owning LDO grants no governance rights in a legal entity, no entitlement to dividends, profits, or any form of interest, and no claim on any underlying assets or collateral.

G.2 Exercise of Rights and Obligation

Since LDO confers mainly governance rights, exercising those rights means participating in Lido DAO governance. Practically, an LDO holder exercises their right by connecting their wallet to the Lido voting interface (e.g., via Aragon's web UI or Snapshot for off-chain signals) and casting votes on active proposals. Proposals may range from protocol upgrades to treasury expenditures. LDO voting is usually one-token-one-vote (often using quadratic or simple majority depending on proposal requirements). The outcome of governance votes, if passing required quorums and thresholds, is executed by the DAO's smart contracts (for on-chain proposals) or by multisignature execution if needed.

There is no requirement that an LDO holder vote or participate – many holders remain passive. Non-participation does not forfeit one's tokens or rights; it simply means others will decide the outcome of votes. If a holder wishes to propose a change, typically they must make a governance forum post and get community agreement, and in some cases hold a minimum number of LDO to initiate an official on-chain proposal (some DAOs have proposal thresholds; Lido's framework currently relies on whitelisting by the Aragon DAO agents or similar mechanisms, which effectively means active community members or the DAO's governing bodies can help push forward proposals on behalf of the community).

G.3 Conditions for Modifications of Rights and Obligations

LDO token's fundamental rights (governance voting) can only be modified through Lido DAO governance consensus itself. No single entity (including the Lido team or foundation) can unilaterally alter LDO holders' rights – any such change (for example, introducing a new utility for LDO or changing its total supply) would require a DAO proposal and approval by LDO holders. This decentralized governance acts as the mechanism for any modifications.

The smart contract that defines LDO could technically be replaced or altered if Lido DAO voted to do so (since the DAO has control of the contract owner privileges if any). However, practically, the LDO token contract is not upgradeable, so altering token mechanics (like supply) would involve deploying a new token or additional contracts – which again would require broad agreement and likely token swap processes. This makes changes to rights very visible and consensual.

G.4 Future Public Offers

Not applicable

G.5 Issuer Retained Crypto-Assets

Not applicable

G.6 Utility Token Classification

No

G.7 Key Features of Goods/Services of Utility Tokens

Not applicable

G.8 Utility Tokens Redemption

Not applicable

G.9 Non-Trading Request

True

G.10 Crypto-Assets Purchase or Sale Modalities

Not applicable

G.11 Crypto-Assets Transfer Restrictions

Not applicable

G.12 Supply Adjustment Protocols

Not applicable. LDO has a fixed one-time issuance with no ongoing supply adjustments. Unlike some tokens that have inflationary or deflationary protocols, LDO's monetary policy is static – all tokens were created at launch and no algorithm governs further supply changes. Specifically, no protocol mints new LDO and no automatic burning mechanism exists (aside from the tokens manually burned by the team which was a one-off event, not a programmed feature).

G.13 Supply Adjustment Mechanisms

Not applicable.

G.14 Token Value Protection Schemes

False

G.15 Token Value Protection Schemes Description

Not Applicable

G.16 Compensation Schemes

False

G.17 Compensation Schemes Description

Not Applicable

G.18 Applicable Law

For admission to trading of LDO on LCX, the applicable law is Liechtenstein law, applied in accordance with MiCA and EU regulations. For decentralized governance or on-chain activities outside LCX, applicable law depends on the user's jurisdiction.

G.19 Competent Court

Any disputes related to services provided by LCX shall fall under the jurisdiction of the Courts of Liechtenstein. For DAO-level governance or on-chain usage, no centralized legal recourse applies.

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H. PART H – INFORMATION ON THE UNDERLYING TECHNOLOGY

H.1 Distributed ledger technology

LDO is issued on Ethereum, a decentralized, public blockchain. Ethereum now operates under a Proof-of-Stake (PoS) consensus mechanism (since the Merge on 15 September 2022), which means network integrity is maintained by validators who stake ETH rather than by miners expending computational work. Ethereum's blockchain provides the ledger that records all LDO token balances and transfers. Each LDO transaction is a transaction on Ethereum and gets included in a block by validators, reaching probabilistic finality within seconds and economic finality typically within ~6–12 minutes (when enough subsequent blocks make reversion economically unfeasible). Ethereum's design prioritizes security and decentralization, handling around 15–20 transactions per second on its base layer, with scaling solutions (Layer-2 rollups) augmenting capacity off-chain.

Key characteristics of Ethereum relevant to LDO: it's Turing-complete, enabling smart contracts. LDO's ERC-20 token contract is one such smart contract running on Ethereum's virtual machine (EVM). Ethereum's state (including LDO token ledger) is replicated across thousands of independent nodes worldwide, making it censorship-resistant and robust against single points of failure.

After the transition to PoS, Ethereum's energy consumption plummeted (over 99.9% drop) making it "green blockchain". The network's security is underpinned by over 500k active validators (as of 2025) staking a combined >17 million ETH, widely distributed. No single entity controls Ethereum, although ecosystem governance (protocol upgrades) is done via open-source collaboration and community consensus (off-chain governance).For LDO holders, this means their token's security (e.g., protection from double-spending or unauthorized transfers) is as strong as Ethereum's security. The finality gadget (Casper-FFG) ensures that once a checkpoint is finalized, transactions up to that point are extremely unlikely to be reverted. Ethereum also incorporates EIP-1559 which affects gas fee mechanics but that mostly impacts ETH (by burning base fees); LDO transactions just pay gas fees in ETH like any ERC-20.

Additionally, Ethereum supports smart contract upgradability patterns. The Lido DAO governance and some Lido protocol contracts are upgradeable by the DAO, but the LDO token contract is not upgradeable – it's a fixed code. Ethereum's logs allow tracking all events (transfers, etc.) for transparency. Tools like Etherscan provide public visibility into LDO's contract and transactions.Overall, Ethereum's DLT provides LDO with a secure, widely-supported environment, interoperable with a huge range of wallets (MetaMask, Ledger, etc.) and services. Ethereum's planned future upgrades (like sharding and proto-danksharding for data availability) aim to improve scalability, which will benefit all tokens including LDO by potentially lowering gas costs and increasing throughput. Ethereum's Layer-2 rollups can also host LDO liquidity (for instance, LDO can be bridged to Arbitrum or Polygon to trade with lower fees, though LDO's main ledger of truth remains on Ethereum mainnet).

In summary, LDO leverages Ethereum's proven blockchain technology, enjoying its security, decentralization, and continuous improvement roadmap. Ethereum's shift to PoS has also aligned with sustainability goals, which we detail in Part J.

LDO Whitepaper: https://lido.fi/static/Lido:Ethereum-Liquid-Staking.pdf

Public block explorer: https://etherscan.io/

LDO developer portal: https://docs.lido.fi/integrations/api
LDO main repository: https://github.com/lidofinance/core

H.2 Protocols and Technical Standards

LDO conforms to the ERC-20 token standard on Ethereum. This standard defines how tokens behave (functions like transfer, approve, transferFrom, totalSupply, balanceOf) ensuring compatibility with exchanges, wallets, and DeFi protocols. ERC-20 is the most widely adopted token standard, and LDO's contract address and ABI adhere to it strictly.

The token smart contract is written in Solidity, compiled to EVM bytecode. It uses standard libraries (like OpenZeppelin's ERC-20 implementation, known for reliability). Technical standard compliance means LDO can integrate seamlessly in any ERC-20 context – for example, an exchange's wallet infrastructure just adds the LDO contract address to support deposits/withdrawals; a DeFi platform can include LDO as a collateral or reward token by using the well-known interface.

Consensus Mechanism (Ethereum PoS): Ethereum's PoS (specifically the Casper FFG combined with LMD-Ghost algorithm) involves validators being randomly chosen to propose blocks and committees of validators attesting to blocks. Finality is achieved by validators reaching supermajority checkpoints (epochs of 32 blocks ~ every 6.4 minutes). If a validator tries to act maliciously (like double-sign conflicting checkpoints), the protocol slashes (penalizes) their staked ETH deposit. This provides security akin to economic finality – reversing finalized blocks would require burning at least 1/3 of staked ETH (~5.6M ETH currently), which is prohibitively costly. The consensus uses minimal energy (just running nodes on commodity hardware). Block time on Ethereum is ~12 seconds, and after 1–2 epochs (around 64–128 blocks, or ~13 minutes) blocks are considered final.

This consensus mechanism ensures LDO token transfers are confirmed quickly (within a few block confirmations) and irreversibly finalized within minutes. It's robust against 51% attacks unless an attacker amasses a majority of staked ETH (which at current value is extremely expensive and would be economically irrational to use for an attack given slashing). The design also encourages decentralization: staking can be done by anyone with 32 ETH or via pooling solutions like Lido itself. Indeed, Lido is a major participant in this consensus by pooling ETH from many users and running a share of validators – however, those operations do not directly affect LDO token's functioning except to illustrate Lido DAO's involvement in Ethereum.

Smart Contract Standards & Security: LDO's contract itself implements no complex logic beyond ERC-20 basics; no custom consensus or fancy features like pausable or mintable are in use (after initial mint, it's fixed). It does include standard events (Transfer, Approval) which wallets and dApps rely on for tracking. Being simple, the token contract has a low attack surface. It has been audited (e.g., by Quantstamp in Dec 2020) which found 0 high-risk issues. The contract has also been live for over four years without incident, indicating its reliability.

Interoperability: As an ERC-20, LDO can be bridged to other chains via cross-chain bridge protocols (there are LDO representations on BNB Chain, Solana's wormhole, etc., created by third-party bridges – these are not native but facilitate multi-chain usage). On Ethereum itself, LDO interacts with other smart contracts fluidly – e.g., DeFi protocols reading the balanceOf for yield farming, or transferFrom for spending allowances.

Technical Standards for Governance: The Lido DAO's on-chain governance originally used Aragon, which means LDO voting was integrated with Aragon's DAO contracts. Currently, Lido DAO governance is evolving – a dual governance design is being discussed where stETH holders get time-locked veto power via an oracle and contract arrangement. If implemented, that will involve additional smart contracts but still revolve around LDO proposals. All these are built on Ethereum's smart contract standards as well (Aragon follows ERC-20 for tokens, etc.).

In conclusion, LDO's technology usage is straightforward: it fully leverages Ethereum's protocols (ERC-20, PoS consensus, EVM) and widely accepted technical standards, ensuring high compatibility, security through battle-tested mechanisms, and decentralization. Future Ethereum upgrades (like Proto-Danksharding/EIP-4844 to reduce Layer-2 fees and Shard chains beyond 2025) will further scale the environment in which LDO operates, potentially increasing transaction throughput and lowering costs for LDO transfers or voting transactions, thus improving user experience for LDO holders.

H.3 Technology Used

The Lido ecosystem utilizes a range of blockchain and web3 technologies to support LDO and the Lido DAO:

Ethereum Blockchain & Smart Contracts: As detailed, Ethereum is the foundational tech. All LDO tokens exist on Ethereum. The Lido DAO's core contracts (for staking, governance, oracles) are also on Ethereum. Interactions with these are done via web3 wallets.

Wallets and Key Management: LDO holders typically use wallets like MetaMask, Ledger Nano, Trezor, etc., to manage their tokens. These wallets store private keys and allow signing of transactions (transfers or governance votes). The security of one's LDO is largely dependent on the security of one's wallet. Many LDO holders keep tokens on exchanges as well; in that case the exchange custodies the keys and reflects balances in user accounts.

Multisignature Wallets (Gnosis Safe): The Lido DAO treasury and certain administrative controls (like adding node operators) are held behind multisig wallets requiring multiple DAO contributors' signatures. For example, the Lido Treasury is managed by a Gnosis Safe with a threshold of X-out-of-Y signatures from elected DAO members. This ensures no single person can misuse DAO funds or control parameters.

Aragon DAO Framework: Lido originally instantiated its DAO using Aragon. This provided the DAO with on-chain proposal and voting contracts linked to LDO. Over time, Lido tailored its governance (introducing EasyTrack for routine decisions off-chain, etc.). But the underlying tech includes Aragon's voting app contracts and token manager contracts which respect LDO balances.

Snapshot (Off-chain Voting): For gas efficiency, Lido uses Snapshot for temperature-check votes (signaling). Snapshot is an off-chain voting system where votes are signed by holders' keys but not executed on-chain automatically. It uses IPFS to store votes and counts voting power by querying a specified block's balances. Lido often does a Snapshot vote to gauge consensus, then an on-chain Aragon vote for final binding decision. This reduces on-chain transactions and cost for participants. LDO holders thus might use Snapshot's web app to exercise governance cheaply.

Developer Tools: Lido's code (for both the staking contracts and token contracts) is open-source on GitHub. The development uses Solidity, with audits by firms as noted (Quantstamp, Sigma Prime, MixBytes, ChainSecurity, etc.). Continuous integration tools, testing frameworks (Hardhat/Truffle), and monitoring tools (Etherscan for verifying contracts, The Graph for indexing data, Dune Analytics for tracking stats) are part of the tech stack to ensure everything runs as intended and data is accessible.

Bridges and Cross-Chain Integrations: While LDO is native to Ethereum, the Lido DAO also deployed LDO token on Layer-2 networks like Arbitrum and Optimism via bridging (so LDO exists there as bridged tokens to facilitate governance or liquidity on L2s). Additionally, Lido operates on other Layer-1s (Solana, etc.), but those protocols have their own governance tokens or are under LDO governance umbrella via Lido DAO decisions. Cross-chain communication is minimal for LDO itself (except bridging, which uses standard bridge contracts by providers like Wormhole or LayerZero to mirror tokens).

H.4 Consensus Mechanism

Ethereum Proof-of-Stake (Casper / Gasper) – As described, LDO's transactions are secured by Ethereum's PoS consensus. We reiterate key points about this mechanism in a concise manner:

Ethereum's PoS consensus, often referred to by the upgrade name "Casper" and augmented by the fork-choice rule LMD-GHOST, involves validators staking 32 ETH each to activate. Validators take turns proposing new blocks approximately every 12 seconds (slot), and all active validators are randomly grouped into committees to attest (vote) on proposed blocks. The network is structured into epochs (32-slot intervals). At each epoch boundary, if validators have supermajority agreement on a checkpoint, that checkpoint is finalized (Casper FFG finality). This means a finalized block (and all before it) cannot be reversed without at least 1/3 of validators being slashed – a very strong economic guarantee of irreversibility.

This consensus mechanism ensures that even though Ethereum is a large distributed system, it reaches agreement on the state (including token balances like LDO's ledger) quickly and with high security. If validators go offline or disagree, they get penalized (minor loss of ETH for going offline, major slashing for equivocation). The system incentivizes honest participation because validators earn ETH rewards for correctly proposing and attesting, and lose ETH for misbehavior.

From a technological standpoint, this consensus uses BLS12-381 cryptography for validator signatures and aggregates them efficiently so that even tens of thousands of validators can attest and the data can be combined into a single signature for a block. This is part of Ethereum's protocol standards (BLS signature aggregation is in use since the Beacon Chain launch).

Network communication in Ethereum PoS is peer-to-peer, gossip-based. There's a multi-client architecture: different software (Prysm, Teku, Lighthouse, Nimbus, Lodestar for consensus; Geth, Nethermind, Besu, Erigon for execution) all interoperating – this client diversity reduces risk of a single software bug causing consensus failure. LDO, being an application-layer token, is unaffected by which client is used – but the resilience of consensus is improved by this diversity.

In essence, LDO benefits from one of the most secure and decentralized consensus mechanisms in operation. Ethereum's PoS currently has over 700k validators (which implies around >22 million ETH staked by April 2025). No single staker has more than ~32% of total stake (Lido's own staking pool holds about 31% of ETH stake, which is significant but even that is spread across many node operators).

This consensus mechanism replaced Proof-of-Work and thereby eliminated energy-intensive mining, aligning with environmental goals and reducing barrier to entry for validators (though 32 ETH is needed, the pooled solutions like Lido or Rocket Pool allow small holders to participate too).

One relevant aspect: Ethereum's consensus now introduces epoch-based randomness (RANDAO) which ensures that selection of block proposers and committees is random and unpredictable in advance, mitigating attack vectors. It's important that no collusion of validators can control which transactions are included or excluded systematically, beyond the minor MEV (Maximal Extractable Value) phenomena, which Ethereum addresses by things like proposer/builder separation (PBS, planned for future). But those are advanced topics – the gist is Ethereum's PoS consensus is fast, secure, and fair.

For LDO holders, if they use LDO on-chain, they rely on this consensus for their transaction finality. If they vote in governance, those votes are either on-chain transactions (thus reliant on PoS finality) or off-chain Snapshot (which relies on the underlying Ethereum state to compute vote weight and off-chain trust in Snapshot's integrity). In both cases, Ethereum's consensus is the backbone ensuring data integrity and ordering

H.5 Incentive Mechanisms and Applicable Fees

Ethereum's PoS consensus doesn't reward LDO specifically, but we discuss the incentives for network participants and any fees relevant:

Validator Incentives: Ethereum validators earn ETH as rewards for proposing blocks and attesting to blocks. This reward comes from two sources: newly minted ETH issuance and fees from users (transaction priority fees, aka tips). The annual ETH staking reward rate is variable (currently around 4-5% annually) depending on total ETH staked and network usage. This keeps validators honest – they stand to gain by following protocol and lose stake if not. This mechanism indirectly benefits LDO holders by keeping Ethereum secure and reliable.

Transaction Fees: Every LDO token transfer or contract interaction (like an LDO vote or approving LDO for spend) requires paying an Ethereum gas fee in ETH. Since EIP-1559, each transaction has a base fee that is burned (destroyed) and an optional tip to validators. This means usage of Ethereum (including LDO transactions) slightly reduces the supply of ETH (burns it), but that doesn't directly affect LDO beyond the fact that if Ethereum usage is high, ETH can become deflationary which can strengthen Ethereum's economy and possibly LDO's environment indirectly. For an LDO holder, the relevant point is: to move or use LDO, you must pay gas in ETH. Fees fluctuate with network demand – can range from a few cents to several dollars or more per transaction. There is no fee paid in LDO itself to anyone for using LDO; Lido DAO doesn't charge anything on LDO transfers or votes (governance votes might have gas cost, but that's network fee, not a charge by issuer).

No Native Staking/Rewards for LDO: LDO cannot be staked within the Lido protocol to earn yields (there is no mechanism like staking LDO to earn a share of fees – Lido's fees are all in ETH and go to node operators and the DAO treasury). Some community or DeFi initiatives might allow LDO staking (for example, some protocols allow locking governance tokens to get boosted governance power or a share of revenue, but Lido doesn't have such a scheme yet). LDO holders who wish to earn yield often deposit LDO into lending protocols to earn interest or provide liquidity in an LDO trading pair to earn trading fees plus maybe extra incentives (in the past, Lido did liquidity mining for LDO pairs). Those are external opportunities, not inherent to LDO.

Deflationary or Inflationary? LDO's supply is fixed, so in effect it is neither inflationary (no new issuance) nor deflationary (no programmed burn), just static. Over time, if Lido DAO never mints more, LDO will only decrease in circulating supply if tokens are lost or if the DAO chooses to burn some. At the moment, there is no burning, so supply remains constant. Thus, holding LDO doesn't guarantee dilution or anti-dilution beyond market trading dynamics.

DAO Treasury & Use of Funds: The Lido protocol charges a 10% fee on staking rewards (this fee is taken from the staking returns; e.g., if gross staking yield is 5%, stETH holders effectively get 4.5% and 0.5% goes to node ops & DAO). This fee is split: currently 50% to node operators, 50% to DAO treasury. The DAO treasury portion accrues in the form of stETH and other assets. How does this relate to LDO incentives? Indirectly, it means the DAO (governed by LDO holders) accumulates assets. LDO holders can decide via governance how to use these assets – e.g., to fund development or potentially to buy back and burn LDO (though that hasn't happened, it's a theoretical possibility). This implies that if the protocol is successful, the DAO treasury grows, which could eventually benefit LDO holders if they choose to distribute treasury assets or otherwise use them to support LDO's market. There's currently no direct revenue share, but the value backing the DAO could bolster LDO's value (market might price LDO partly on treasury value, expecting future use).

No Monetary Incentive for Governance Participation (currently): Some projects pay voters or require staking to incentivize participation; Lido does not. Governance participation is voluntary and based on the holder's desire to influence outcomes. There's no "reward" in tokens for voting, apart from intangible benefit of shaping the protocol and perhaps preserving/increasing LDO's value by good governance. This could lead to voter apathy issues, but Lido's voter turnout has been reasonable given major token holder involvement (sometimes funds delegate voting to specialists like Gauntlet or engage directly). If low turnout ever is an issue, the DAO could consider adding incentives (like small

LDO rewards for voting), but none exist now.

Gas Rebates for Voting: Not implemented, but conceptually the DAO could reimburse large token holders for gas spent on on-chain voting if needed. At present, much voting is done via Snapshot (no gas cost to voters), which is an incentive by itself to encourage participation (ease of use).

In conclusion, Ethereum's incentive model provides network security (via staking rewards and fee burning), and Lido's token model avoids built-in inflation, meaning LDO holders are not diluted by protocol design. The Lido DAO's value flows (fees) accrue to the DAO treasury, which is controlled by LDO governance – giving LDO holders indirect economic influence. LDO's price in the market therefore reflects speculative and governance power value rather than any direct yield. This could change if governance decided to introduce token economics adjustments (like fee-sharing or buybacks), but as of this writing the incentive alignment for LDO is purely via governance and expectation of long-term control over a valuable protocol.

H.6 Use of Distributed Ledger Technology

True

H.7 DLT Functionality Description

The Lido DAO (LDO) token operates on the Ethereum blockchain, a public and permissionless distributed ledger technology (DLT) system that uses a Proof-of-Stake (PoS) consensus mechanism. Ethereum provides a robust and decentralized infrastructure that ensures the security, immutability, and traceability of all LDO transactions. As an ERC-20 standard token, LDO leverages Ethereum's native smart contract functionality, enabling transparent token issuance, transfer, and ownership tracking. All LDO transactions are recorded on the Ethereum ledger and can be verified via public blockchain explorers such as Etherscan. The LDO smart contract (address: 0x5a98fcBEA516Cf06857215779Fd812CA3bef1B32) is immutable and non-upgradeable, ensuring a fixed supply and preventing unauthorized changes to its logic. The token does not rely on custom-built infrastructure or a proprietary DLT; instead, it inherits the decentralization and resilience of Ethereum's well-established validator network. As Ethereum supports composability across the decentralized finance (DeFi) ecosystem, LDO benefits from seamless interoperability with other smart contracts and applications deployed on the network, including decentralized exchanges (DEXs), lending protocols, and governance platforms.

H.8 Audit

True

H.9 Audit Outcome

Specifically, the results of the key audits were:

Quantstamp (Dec 2020) – No high-risk issues found. 14 total issues (mostly minor) were identified, 7 were resolved and the rest were either low risk or acknowledged with mitigations. No unresolved critical problems remained at deployment.

Sigma Prime (Dec 2020) – Found 5 medium, 8 low issues, and 5 info; all medium issues were either resolved or considered acceptable by closure. Importantly, 0 high severity issues. Sigma Prime concluded the Lido contracts (which include LDO and DAO components) were secure for launch after fixes.

ChainSecurity (Aug 2022 & Feb 2023) – Audited new modules (e.g., the Lido staking router). In Aug 2022, 9 issues (none critical; 4 risk-accepted, 5 acknowledged). In Feb 2023, 13 issues (0 critical, 10 fixed, 3 acknowledged). Thus, all critical/major findings were fixed; only some minor notes remained as acknowledgments (with no impact or accepted trade-offs).

Additional audits by MixBytes (2021) on specific components (like oracles, withdrawal contracts) similarly reported 0 critical issues and any major issues fixed.

In summary, all external audits reported no critical vulnerabilities in Lido's smart contracts prior to deployment, and any issues of lower severity were addressed or deemed non-exploitable. The auditing firms provided assurance that Lido's contracts (including the LDO token contract and DAO governance mechanisms) met industry security standards. Furthermore, Lido has been live since December 2020 with no security breaches of its on-chain contracts to date, indicating the effectiveness of these audits and the project's security practices. Lido DAO continues to engage auditors for any major upgrades and runs an ongoing bug bounty (max payout $2M) to incentivize any further discovery of issues. To date, a few low/medium bugs have been responsibly disclosed and fixed through the bounty program, and no critical exploits have occurred.

(Sources: Public audit reports from Quantstamp, Sigma Prime, and ChainSecurity; Lido's audit repository confirms issues resolved status.)

I. PART I – INFORMATION ON RISKS

I.1 Offer-Related Risks

Market & Trading Risks. Since LDO is being admitted to trading (as opposed to a new issuance), the primary offer-related risk is market volatility. LDO's price on exchanges can be highly volatile, influenced by general crypto market sentiment, demand for governance tokens, and perceptions of the Lido protocol's performance. Past price history shows significant fluctuations (for instance, LDO traded below $1 and above $7 within 2022–2023). Investors could incur large losses if the market moves adversely. Liquidity risk is also present: although LDO is listed on major exchanges, liquidity can dry up during market stress, making it hard to execute large trades without slippage.

Regulatory uncertainty is another risk for trading: different jurisdictions may regulate or even restrict the trading of governance tokens. If LDO were deemed a security in certain countries (a possibility under evolving laws), exchanges in those countries might delist LDO or bar certain users, impacting global liquidity and price OBJ. As MiCA comes into effect, having this white paper filed helps in the EEA, but outside the EEA (or if future EU interpretations change) there may be regulatory changes affecting trading venues or investor eligibility.

Exchange-related risks: Those trading LDO on centralized exchanges face counterparty risk – the exchange could be hacked or insolvent, leading to loss of assets (this is not specific to LDO, but a general risk of holding tokens on exchanges). Decentralized trading carries smart contract risk and slippage risk. There's also market manipulation risk: as a freely traded token, LDO's price could be subject to manipulation by large holders ("whales") or pump-and-dump schemes. While LDO has broad distribution, a significant portion is still held by early investors and the treasury; any unexpected sale from those could depress price abruptly. LCX and other exchanges will monitor for market abuse, but there is no guarantee such activities won't occur in less-regulated venues.

Custodial risks: If investors hold LDO in personal wallets, they must manage private keys securely. Loss of keys or sending tokens to a wrong address will result in permanent loss of those LDO – an operational risk every token holder bears individually.

Taxation and legal risks: Buying or selling LDO could trigger tax events (capital gains, etc.), and unfavorable tax treatment could reduce net returns or make holding costly. Potential new taxes on crypto transactions (for example, some jurisdictions have discussed transaction taxes) could also reduce trading activity or profitability.

Offer timing risk: Although not an "offer" in the sense of issuance, those buying LDO now may be doing so at a time of possibly inflated interest in governance tokens. If interest fades, demand could drop. Also, macroeconomic conditions (interest rates, etc.) can flow into crypto risk appetite – e.g., in a rising rate environment, speculative tokens often see price declines as investors seek safer yields.

I.2 Issuer-Related Risks

LDO doesn't have an "issuer" risk in the classical sense, it's subject to ecosystem risks: the health, actions, and continuity of its core contributing organizations and individuals. Holders should understand that their investment's success partly rides on the continued development and adoption of LDO. A failure or major setback in development (or a fracture in the community consensus about direction) could impair the functionality and appeal of LDO, which would likely depress LDO's value. Conversely, LDO's decentralization means no single failure can kill the project outright, but it can still be severely hindered by loss of community or developer support.

I.3 Crypto-Assets-Related Risks

- Extreme Price Volatility: As emphasized, LDO's price can move dramatically. It's not uncommon for memecoins to gain 1000% and then lose 90%+ of value. For example, LDO's price skyrocketed in its first weeks and then subsequently fell sharply from all-time highs (a pattern of boom-bust) . This volatility means investment in LDO can result in significant losses very quickly. Unlike more established assets, LDO has no price floor anchored by fundamentals; it could theoretically go to

near-zero if market interest evaporates.

- Lack of Intrinsic Value: LDO does not produce revenue, does not represent ownership, and has no utility, thus its valuation is entirely speculative . This means its market price is driven by collective belief and momentum. If the community sentiment shifts (e.g., the meme stops being funny or attention moves to the next meme token), demand could drop precipitously. With nothing fundamental to catch that fall, the value could drop to essentially zero. Investors must recognize they are trading something whose value is what the next person will pay, no more.

- Herd Behavior and FOMO: The memecoin market is fueled by social media (Twitter, Reddit, Telegram groups) and often by hype and fear-of-missing-out. This can lead to bubbles. Conversely, negative narratives (like a rumor that “the devs rugged” or “LDO is dead now”) can cause herd selling. The psychology-driven nature of this asset increases unpredictability. It also opens potential for market manipulation: e.g., pump-and-dump schemes orchestrated by groups since it’s easier to sway sentiment on a meme than on a well-studied asset.

- Liquidity and Slippage: Covered above but to reiterate: in tight conditions, trying to sell a large amount of LDO may lead to selling at much lower prices due to order book gaps (slippage) . Or if using DEX liquidity pools, a large trade can move the price significantly due to the AMM curve. This means even the quoted market price might not be what an investor actually gets when executing a sizable trade. Also, if trading on DEX, impermanent loss affects liquidity providers, and on CEX, withdrawal congestion or limits might appear in peak times.

- Custodial Risks: If holders keep LDO on exchanges or custodial wallets, they face typical crypto risks like exchange hacks, freezes, or insolvency (as seen in past with some platforms). If on personal wallets, there’s risk of losing private keys or falling for phishing scams (especially as scammers may target LDO holders with fake airdrop schemes or support scams). Because memecoin investors are sometimes less experienced (drawn by hype), they may be more vulnerable to such scams. So, operational security risk is real – losing one’s LDO due to user error is irreversible.

- Regulatory and Taxation: Owning and trading LDO could have tax implications (e.g., capital gains taxes on trades, which users must track even if small trades). If a jurisdiction bans or restricts crypto trading, LDO would be included. Regulatory actions against anonymity (e.g., enforcing KYC on DEX interfaces or sanctioning mixing services if people try to hide large LDO profits) could indirectly affect usage. Also, as a note from Solana’s risk discussion, classification uncertainty: while currently LDO is just an “other crypto-asset,” future regulatory frameworks might impose new rules (like requiring memecoin issuers to do X, or exchanges to apply higher disclosures for high-risk tokens). Such changes could affect LDO’s legal status or accessibility .

I.4 Project Implementation-Related Risks

Lido, as a project, must continuously adapt and operate smoothly; many risks in implementation can indirectly impact LDO’s value and viability:

- Smart Contract Bugs in Lido Protocol: The Lido protocol (particularly the stETH contracts, oracle, withdrawal system) is complex. A critical bug could lead to loss or locking of staked funds, inaccurate accounting of stETH, or other failures. Although thoroughly audited, the risk is never zero. A major exploit could drastically reduce user trust in Lido, causing a mass exodus and reputational damage – LDO’s price would likely collapse in that scenario.

- Validator Slashing Events: Lido spreads stake across many node operators to mitigate slashing risk. However, systemic issues (like a bug affecting many Lido node operators or a misconfiguration) could cause multiple validators to get slashed simultaneously. In an extreme worst case, up to 100% of staked ETH can be slashed if validators act maliciously in concert (very unlikely intentionally, but could happen via catastrophic bug or compromise). Even smaller slashing incidents (say a few validators) could incur financial loss (the insurance fund

may cover it, but if it's large it may not suffice) and harm Lido's reputation for safety. If stETH loses credibility as safe, people might stop using Lido, directly reducing the DAO's fee revenue and hurting LDO sentiment.

- Ethereum Network Changes: Lido's business is tied to Ethereum's rules. If Ethereum changed core protocol (for instance, altering withdrawal conditions, reward structure, or even economics like lowering staking yields), Lido's model might be affected. A dramatic example: if Ethereum core devs decided to enforce some decentralization rule (unlikely) or if staking yields drop due to a huge influx of stake, Lido's appeal might diminish. Conversely, if Ethereum faces issues (like network congestion making staking less attractive, or any consensus problem leading to chain forks), Lido's operations might be disrupted (fork scenarios could cause duplicate stETH tokens on two chains; the DAO might have to pick a canonical chain – a contentious situation that can be chaotic, as seen with Ethereum/Ethereum Classic in 2016 or more recently with potential PoW forks at the Merge). LDO's value could be volatile around such uncertainty.

- Multichain Expansion Risks: Lido operates on multiple blockchains (stSOL on Solana, etc.). These instances are governed by Lido DAO too, and if something goes wrong on another chain (e.g., Solana's Lido implementation has a flaw or Solana network issues cause stSOL depeg), it could reflect poorly on Lido as a whole. Also, implementing on multiple chains adds complexity – the DAO must oversee different developer teams and ensure consistent quality, which is challenging. Negative events on one chain could reduce trust in Lido on Ethereum as well.

- Governance Decision Risks: The DAO might implement changes that have unintended consequences. For example, altering fees – if Lido DAO decided to increase the protocol fee, it might improve treasury revenue but could drive users to competitors due to lower yields, shrinking the user base. Conversely if it drops fees to attract more users, treasury income per staked ETH drops and might hurt sustainability if costs aren't covered. There's a risk of governance making suboptimal decisions (especially under influence of large stakeholders with particular agendas). Since changes are executed by vote, if analysis is not thorough, a proposal might pass that introduces a vulnerability or economic issue. While the community is fairly professional, there's always risk of oversight or conflict.

- Delayed Upgrades or Inability to Implement: If Lido fails to upgrade timely (e.g., if Ethereum introduces a new feature like withdrawal credential change and Lido doesn't adapt, stakers might move to protocols that do adapt), Lido could lose ground. There is risk that DAO governance, by nature slower than a centralized entity, might not move quickly enough in a rapidly changing environment. Also, dependency on external devs means if a key upgrade is beyond the team's ability or delayed (for instance, implementing Distributed Validator tech), it could give advantage to rivals.

I.5 Technology-Related Risks

- Ethereum Network Congestion and Fees: As experienced, a surge in LDO transactions can congest Ethereum, leading to high gas fees that make small transactions impractical . If Ethereum's throughput doesn't improve or if another memecoin frenzy (including LDO or others) clogs the network, LDO holders might find it difficult to move their tokens quickly or cost-effectively. This is a risk because it can impede trading or arbitrage, possibly causing price disparities or inability to react to market conditions. Ethereum is working on scaling (layer-2s mitigate this somewhat), but base layer congestion remains a risk.

- Ethereum Security Risks: While highly secure, if a fundamental vulnerability in Ethereum's PoS or cryptography were discovered (e.g., a break in the elliptic curve signature, or a successful 51% attack by stakers colluding), it could compromise token security. This is very theoretical; Ethereum has strong security practices. But one horizon risk is quantum computing: in the far future, quantum attacks could break current cryptography. That's already

mentioned in other whitepapers like Solana's . If Ethereum doesn't upgrade in time for quantum resistance (again, a long-term risk), all tokens including LDO would be at risk. Ethereum devs are aware and will likely upgrade if needed, but it's a tail risk.

- Smart Contract Bug or Exploit: Although audits were clean, if any undiscovered bug existed in the LDO contract or ERC-20 standard implementation on Ethereum, it could be exploited. For example, some ERC-20 tokens historically had bugs in approve/transferFrom patterns (the known double-spend if not careful updating allowance – mitigated by using increaseAllowance). If a LDO user misuses these functions (e.g., doesn't manage allowances properly), they could be phished by malicious contracts to spend their tokens – not a bug in LDO contract per se, but an *interaction risk* that exists with any ERC-20 (e.g., giving unlimited allowance to a DeFi app that turns out malicious can result in theft of all your LDO). So user error with smart contracts (approving malicious spender) is a tech risk common in DeFi usage.

- Dependent Service Risks: Tools like block explorers (Etherscan) or RPC node services (Infura, Alchemy) are often used by holders to monitor and send transactions. Outages or errors in these can cause temporary confusion (e.g., if a block explorer mis-reports data, users might panic). While the blockchain itself might be fine, if major interface tools go down, average users may have difficulty interacting with the chain. This is minor and usually short-lived, but a consideration (Solana's doc noted reliance on RPC providers as a risk , analogously, Ethereum has many alternative providers though).

- Interoperability Bugs: Interacting with other smart contracts (like liquidity pools, lending protocols) introduces risk that those contracts might malfunction or be exploited, indirectly affecting LDO's market (if a major pool is drained, etc.). Not a fault of LDO, but a risk to holders using such tech. For example, if someone locked a ton of LDO in a DeFi contract and that contract was hacked, those tokens could flood the market or be lost, impacting price and holder distribution.

I.6 Mitigation Measures

- Voluntary Transparency (White Paper): This very document is a mitigation. By providing clear information on LDO's nature, supply, and risks, LCX aims to ensure investors are making informed decisions, thereby mitigating the risk of misunderstanding or misinformation-related losses. While it doesn't reduce volatility, it reduces informational asymmetry.

- Exchange Compliance and Monitoring: LCX, as a regulated exchange, will monitor LDO trading for market abuse (unusual trading patterns, insider trading by known addresses, etc.). If any suspicious activities occur (like attempted wash trading or manipulation on the LCX platform), LCX can intervene (pause trading, investigate accounts). This oversight can mitigate some market manipulation risk at least on the LCX venue, contributing to overall market integrity.

- Liquidity Support: To reduce initial liquidity risk on LCX, LCX may work with liquidity providers or market makers who will provide buy/sell orders within reasonable spreads. Ensuring a basic level of order book depth mitigates extreme slippage for moderate trade sizes. Additionally, the presence of many trading venues provides arbitrage opportunities that tend to equalize prices and provide some liquidity backstop (if one exchange's price diverges, arbitragers trade to bring it in line). That network of arbitragers is a mitigating factor against prolonged illiquidity or mispricing.

- Smart Contract Security Measures: The LDO contract's simplicity and completed audits are themselves mitigations of technical risk. By having no complex functions, it avoids many potential bugs. The renouncement of ownership mitigated the risk of any malicious admin action [illegible]. Essentially, code immutability now serves as a security measure – nothing can be changed or abused by insiders in the contract.

- Decentralized Distribution / Burn: The initial distribution (93.1% to liquidity) and burning of LP tokens removed the possibility of a traditional rug pull by the deployers pulling liquidity [obj]. The further burn of 6.9T in Oct 2023 mitigated the risk from the rogue insiders and demonstrated commitment to the community [obj] [obj]. That action restored some trust and reduced the supply overhang. Now, with only ~0.9% in the multi-sig, the potential damage from those tokens is much smaller (and presumably, the new signers are more trustworthy). This mitigation came in response to community pressure – showing that community oversight can prompt corrections to issues.

- Community Vigilance and Governance (informal): The LDO community, while not formal, has active participants who track large holders and report unusual movements on social media (essentially acting as on-chain analysts). For instance, whale watch bots announce if a big holder sends LDO to an exchange. This transparency allows mitigation of insider dumps: when the community spotted devs moving funds, they publicized it and caused a broad reaction that forced a burn and new management. So, an ongoing mitigation is real-time public scrutiny via blockchain analytics – large moves cannot easily hide, thereby discouraging bad actors to an extent (they know they'll be noticed).

J. PART J - INFORMATION ON THE SUSTAINABILITY INDICATORS IN RELATION TO ADVERSE IMPACT ON THE CLIMATE AND OTHER ENVIRONMENT-RELATED ADVERSE IMPACTS

Adverse impacts on climate and other environment-related adverse impacts.

J.1 Information on principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanism

Ethereum's Proof-of-Stake consensus, used by LDO, significantly reduces energy consumption compared to the previous Proof-of-Work system. The Ethereum network no longer requires power-hungry mining rigs; instead, it relies on validators running relatively low-energy computers.This PoS model eliminates the need for energy-intensive mining by replacing it with validator-based staking, significantly reducing the relative computational demands compared to traditional PoW systems. However, it is important to clarify that this does not imply an absolute reduction of energy consumption or environmental impact. Rather, it represents a comparatively less burdensome model in terms of energy use and carbon footprint.

In accordance with MiCA's regulatory requirements for climate-related disclosures, the sustainability indicators related to LDO are tied to Ethereum's network-level operations and validator infrastructure

General information	
S.1 Name *Name reported in field A.1*	LCX
S.2 Relevant legal entity identifier Identifier referred to in field A.2	529900SN07Z6RTX8R418
S.3 Name of the crypto-asset Name of the crypto-asset, as reported in field D.2	LDO
S.4 Consensus Mechanism The consensus mechanism, as reported in field H.4	Lido DAO Token is present on the following networks: Binance Smart Chain, Ethereum, Solana, Terra Classic. Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof of Staked Authority (PoSA), which combines elements of Delegated Proof of Stake (DPoS) and Proof of Authority (PoA). This method ensures fast block times and low fees while maintaining a level of decentralization and security. Core Components 1. Validators (so-called "Cabinet Members"): Validators on BSC are responsible for producing new blocks, validating transactions, and maintaining the network's security. To become a validator, an entity must stake a significant amount of BNB (Binance Coin). Validators are selected through staking and voting by token holders. There are 21 active validators at any given time, rotating to ensure decentralization and security. 2. Delegators: Token holders who do not wish to run validator nodes can delegate their BNB tokens to validators. This delegation helps validators increase their stake and improves

	their chances of being selected to produce blocks. Delegators earn a share of the rewards that validators receive, incentivizing broad participation in network security. 3. Candidates: Candidates are nodes that have staked the required amount of BNB and are in the pool waiting to become validators. They are essentially potential validators who are not currently active but can be elected to the validator set through community voting. Candidates play a crucial role in ensuring there is always a sufficient pool of nodes ready to take on validation tasks, thus maintaining network resilience and decentralization. Consensus Process 4. Validator Selection: Validators are chosen based on the amount of BNB staked and votes received from delegators. The more BNB staked and votes received, the higher the chance of being selected to validate transactions and produce new blocks. The selection process involves both the current validators and the pool of candidates, ensuring a dynamic and secure rotation of nodes. 5. Block Production: The selected validators take turns producing blocks in a PoA-like manner, ensuring that blocks are generated quickly and efficiently. Validators validate transactions, add them to new blocks, and broadcast these blocks to the network. 6. Transaction Finality: BSC achieves fast block times of around 3 seconds and quick transaction finality. This is achieved through the efficient PoSA mechanism that allows validators to rapidly reach consensus. Security and Economic Incentives 7. Staking: Validators are required to stake a substantial amount of BNB, which acts as collateral to ensure their honest behavior. This staked amount can be slashed if validators act maliciously. Staking incentivizes validators to act in the network's best interest to avoid losing their staked BNB. 8. Delegation and Rewards: Delegators earn rewards proportional to their stake in validators. This incentivizes them to choose reliable validators and participate in the network’s security. Validators and delegators share transaction fees as rewards, which provides continuous economic incentives to maintain network security and performance. 9. Transaction Fees: BSC employs low transaction fees, paid in BNB, making it cost-effective for users. These fees are collected by validators as part of their rewards, further incentivizing them to validate transactions accurately and efficiently. The crypto-asset's Proof-of-Stake (PoS) consensus mechanism, introduced with The Merge in 2022, replaces mining with validator staking. Validators must stake at least 32 ETH every block a

	validator is randomly chosen to propose the next block. Once proposed the other validators verify the blocks integrity. The network operates on a slot and epoch system, where a new block is proposed every 12 seconds, and finalization occurs after two epochs (~12.8 minutes) using Casper-FFG. The Beacon Chain coordinates validators, while the fork-choice rule (LMD-GHOST) ensures the chain follows the heaviest accumulated validator votes. Validators earn rewards for proposing and verifying blocks, but face slashing for malicious behavior or inactivity. PoS aims to improve energy efficiency, security, and scalability, with future upgrades like Proto-Danksharding enhancing transaction efficiency. Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security. Here's a detailed explanation of how these mechanisms work: Core Concepts 1. Proof of History (PoH): Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time. Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions. 2. Proof of Stake (PoS): Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks. Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security. Consensus Process 1. Transaction Validation: Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds. 2. PoH Sequence Generation: A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network. 3. Block Production: The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block,

	ensuring that all transactions are processed in the correct order. 4. Consensus and Finalization: Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized. Security and Economic Incentives 1. Incentives for Validators: Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance. Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently. 2. Security: Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens. Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators. 3. Economic Penalties: Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions. Terra blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, which ensures fast, scalable, and secure transaction processing. Core Components: Delegated Proof of Stake (DPoS): Validators: A limited set of validators are responsible for validating transactions, proposing blocks, and securing the network. Validators are selected based on the amount of LUNA tokens staked, either directly or delegated by token holders. Delegation: LUNA holders can delegate their tokens to validators, allowing them to participate in staking rewards without running their own validator nodes. Rotational Leadership: Validators are selected in a round-robin manner to propose new blocks, ensuring fairness and efficiency in block production. Tendermint BFT (Byzantine Fault Tolerance): Terra integrates the Tendermint Core consensus engine, providing fast block finality and resilience against up to one-third of malicious or faulty validators. Finality: Transactions are confirmed once a block is added, reducing the risk of chain

	reorganizations and ensuring immediate finality. Governance Integration: LUNA token holders participate in governance by voting on proposals related to protocol upgrades, parameter changes, and community decisions, aligning stakeholder incentives with network health.
S.5 Incentive Mechanisms and Applicable Fees Incentive mechanisms to secure transactions and any fees applicable, as reported in field H.5	Lido DAO Token is present on the following networks: Binance Smart Chain, Ethereum, Solana, Terra Classic. Binance Smart Chain (BSC) uses the Proof of Staked Authority (PoSA) consensus mechanism to ensure network security and incentivize participation from validators and delegators. Incentive Mechanisms 1. Validators: Staking Rewards: Validators must stake a significant amount of BNB to participate in the consensus process. They earn rewards in the form of transaction fees and block rewards. Selection Process: Validators are selected based on the amount of BNB staked and the votes received from delegators. The more BNB staked and votes received, the higher the chances of being selected to validate transactions and produce new blocks. 2. Delegators: Delegated Staking: Token holders can delegate their BNB to validators. This delegation increases the validator's total stake and improves their chances of being selected to produce blocks. Shared Rewards: Delegators earn a portion of the rewards that validators receive. This incentivizes token holders to participate in the network’s security and decentralization by choosing reliable validators. 3. Candidates: Pool of Potential Validators: Candidates are nodes that have staked the required amount of BNB and are waiting to become active validators. They ensure that there is always a sufficient pool of nodes ready to take on validation tasks, maintaining network resilience. 4. Economic Security: Slashing: Validators can be penalized for malicious behavior or failure to perform their duties. Penalties include slashing a portion of their staked tokens, ensuring that validators act in the best interest of the network. Opportunity Cost: Staking requires validators and delegators to lock up their BNB tokens, providing an economic incentive to act honestly to avoid losing their staked assets. Fees on the Binance Smart Chain 5. Transaction Fees: Low Fees: BSC is known for its low transaction fees compared to other blockchain networks. These fees are paid in BNB and are essential for maintaining network operations and

	compensating validators. Dynamic Fee Structure: Transaction fees can vary based on network congestion and the complexity of the transactions. However, BSC ensures that fees remain significantly lower than those on the Ethereum mainnet. 6. Block Rewards: Incentivizing Validators: Validators earn block rewards in addition to transaction fees. These rewards are distributed to validators for their role in maintaining the network and processing transactions. 7. Cross-Chain Fees: Interoperability Costs: BSC supports cross-chain compatibility, allowing assets to be transferred between Binance Chain and Binance Smart Chain. These cross-chain operations incur minimal fees, facilitating seamless asset transfers and improving user experience. 8. Smart Contract Fees: Deployment and Execution Costs: Deploying and interacting with smart contracts on BSC involves paying fees based on the computational resources required. These fees are also paid in BNB and are designed to be cost-effective, encouraging developers to build on the BSC platform. The crypto-asset's PoS system secures transactions through validator incentives and economic penalties. Validators stake at least 32 ETH and earn rewards for proposing blocks, attesting to valid ones, and participating in sync committees. Rewards are paid in newly issued ETH and transaction fees. Under EIP-1559, transaction fees consist of a base fee, which is burned to reduce supply, and an optional priority fee (tip) paid to validators. Validators face slashing if they act maliciously and incur penalties for inactivity. This system aims to increase security by aligning incentives while making the crypto-asset's fee structure more predictable and deflationary during high network activity. Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions. Here’s a detailed explanation of the incentive mechanisms and applicable fees: Incentive Mechanisms 4. Validators: Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks. Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity. 5. Delegators:

	Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization. 6. Economic Security: Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network. Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain 7. Transaction Fees: Low and Predictable Fees: Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum. Fee Structure: Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth. 8. Rent Fees: State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network. 9. Smart Contract Fees: Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume. The Terra blockchain's incentive structure is designed to reward network participants, ensure security, and sustain ecosystem growth, while its fee model aligns with its focus on scalability and cost-efficiency. Incentive Mechanisms: Staking Rewards: Validators: Validators earn staking rewards for their role in securing the network and validating transactions. Rewards are distributed in LUNA tokens, derived from transaction fees and seigniorage revenue. Delegators: LUNA holders who delegate their tokens to validators receive a share of staking rewards, proportional to the amount delegated, incentivizing broad participation. Seigniorage Rewards: Validators and delegators benefit from

	seigniorage revenue, generated when new stablecoins (e.g., TerraUSD) are minted. A portion of this revenue is allocated to reward LUNA stakers. Stability Incentives: LUNA token holders are incentivized to stake and participate in governance to maintain the stability of Terra's ecosystem and its algorithmic stablecoins. Governance Participation Rewards: Validators and delegators have governance voting rights, enabling them to shape the network's future. Participation in governance aligns incentives with long-term ecosystem health. Applicable Fees: Transaction Fees: Users pay fees in LUNA or stablecoins for transactions such as fund transfers, smart contract execution, and staking. These fees are distributed among validators and delegators, providing additional incentives for network security and functionality. Dynamic Fee Model: Transaction fees are dynamically adjusted based on network congestion and transaction size. This ensures efficient resource allocation while keeping fees affordable for users. Seigniorage Fee: A portion of revenue from stablecoin minting is directed to the treasury and distributed to stakers, reinforcing network participation and development. Burning Mechanism: A portion of fees and seigniorage revenue may be burned, reducing LUNA supply over time and contributing to its deflationary tokenomics.
S.6 Beginning of the period to which the disclosure relates	2024-05-18
S.7 End of the period to which the disclosure relates	2025-05-18
Mandatory key indicator on energy consumption	
S.8 Energy consumption Total amount of energy used for the validation of transactions and the maintenance of the integrity of the distributed ledger of transactions, expressed per calendar year	1086.60427 kWh per year
Sources and methodologies	
S.9 Energy consumption sources and Methodologies Sources and methodologies used in relation to the information reported in field S.8	For the calculation of energy consumptions, the so called "bottom-up" approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy

	consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regulary, based on data of the Digital Token Identifier Foundation.

J.2 Supplementary information on principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanism

Supplementary key indicators on energy and GHG emissions	
S.10 Renewable energy consumption Share of energy used generated from renewable sources, expressed as a percentage of the total amount of energy used per calendar year, for the validation of transactions and the maintenance of the integrity of the distributed ledger of transactions.	14.770208242%
S.11 Energy intensity Average amount of energy used per validated transaction	0.00000 kWh
S.12 Scope 1 DLT GHG emissions – Controlled Scope 1 GHG emissions per calendar year for the validation of transactions and the maintenance of the integrity of the distributed ledger of transactions	0.00 tCO2e per year
S.13 Scope 2 DLT GHG emissions – Purchased Scope 2 GHG emissions, expressed in tCO2e per calendar year for the validation of transactions and the maintenance of the integrity of the distributed ledger of transactions	1873.14310 tCO2e/a
S.14 GHG intensity Average GHG emissions (scope 1 and scope 2) per validated transaction	0.00000 kgCO2e per transaction
Sources and methodologies	
S.15 Key energy sources and methodologies Sources and methodologies used in relation to the information reported in fields S.10 and S.11	To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and

	consensus mechanism. This geo-information is merged with public information from the European Environment Agency (EEA) and thus determined.
S.16 Key GHG sources and methodologies Sources and methodologies used in relation to the information reported in fields S.12, S.13 and S.14	To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from the European Environment Agency (EEA) and thus determined.